

WHAT IS CLAIMED IS:

1. A method of modeling a particle system composed of particles having attributes, comprising:
 - receiving a definition of a particle path;
 - modifying at least one attribute of a particle based on a distance between the particle and the particle path;
 - and
 - rendering the particles.
2. The method of claim 1, further comprising:
 - receiving particle attribute information; and
 - generating a set of attributes based on the particle attribute information.
3. The method of claim 1, wherein receiving comprises:
 - receiving coordinates for a set of points that are continuously connected using a mathematical construct; and
 - receiving a control algorithm corresponding to the particle path.
4. The method of claim 3, wherein the mathematical construct comprises a spline curve.

5. The method of claim 4, wherein the spline curve comprises a Catmull-Rom spline curve.

6. The method of claim 4, wherein modifying further comprises:

determining a distance between the particle and a closest point on the path; and

determine an amount of change to the particle attribute based on the distance.

7. The method of claim 4, wherein the control algorithm is defined to change at least one of a position attribute, a color attribute and a size attribute of the particle during an up-date cycle.

8. The method of claim 7, further comprising:

determining an occurrence of the up-date cycle according to one of a particle's age, position, color and size.

9. The method of claim 6, wherein modifying further comprises:

modifying the particle attribute an amount that varies based on the distance.

10. The method of claim 6, wherein the particle system is a three-dimensional particle system and the particles are defined by three-dimensional coordinates.

11. A article comprising a machine-readable medium that stores machine-executable instructions for modeling a particle system composed of particles having attributes, the instructions causing a machine to:

receive a particle path definition;

modify at least one attribute of a particle based on a distance between the particle and the particle path; and

render the particles.

12. The article of claim 11, further comprising instructions that cause the machine to:

receive particle attribute information; and

generate a set of attributes based on the particle attribute information.

13. The article of claim 11, wherein receive comprises:

receive coordinates for a set of points;

connect each of the set of points continuously based on a mathematical construct; and

receiving a control algorithm definition corresponding to the particle path.

14. The article of claim 13, wherein the mathematical construct comprises a spline curve.

15. The article of claim 14, wherein the spline curve comprises a Catmull-Rom spline curve.

16. The article of claim 14, wherein modifying further comprises instructions that cause the machine to:

determine a distance between the particle and a closest point and the particle; and

determine an amount of change to the particle attribute based on the distance.

17. The article of claim 14, wherein one the control algorithm is defined to change at least one of a position attribute, a color attribute and a size attribute of the particle during an up-date cycle.

18. The article of claim 17, further comprising instructions that cause the machine to:

determine an occurrence of the up-date cycle according

to one of a particle's age, position, color and size.

19. The article of claim 16, wherein modifying further comprises instructions causing the machine to:

modify the particle attribute an amount that varies based on the distance.

20. The article of claim 16, wherein the particle system is a three-dimensional particle system and the particles are defined by three-dimensional coordinates.

21. An apparatus for modeling a particle system composed of particles having attributes, comprising:

a memory that stores executable instructions; and

a processor that executes the instructions to:

receive a particle path definition;

modify at least one attribute of a particle based on a distance between the particle and the particle path;

and

render the particles.

22. The apparatus of claim 21, wherein the processor executes instruction to:

receive particle attribute information; and

generate a set of attributes based on the particle attribute information.

23. The apparatus of claim 21, wherein receive comprises:
receive coordinates for a set of points;
connect continuously each of the set of points using a mathematical construct; and
receive a control algorithm definition corresponding to the particle path.

24. The apparatus of claim 23, wherein the mathematical construct comprises a spline curve.

25. The apparatus of claim 24, wherein the spline curve comprises a Catmull-Rom spline curve.

26. The apparatus of claim 25, wherein modifying further comprises instructions that cause the machine to:

determine a distance between the particle and a closest point on the particle path; and

determine an amount of change to the particle attribute based on the distance.

27. The apparatus of claim 24, wherein the control

algorithm is defined to change at least one of a position attribute, a color attribute and a size attribute of the particle during an up-date cycle.

28. The apparatus of claim 27, further comprising instructions that cause the machine to:

determine an occurrence of the up-date cycle according to one of a particle's age, position, color and size.

29. The apparatus of claim 26, wherein modifying further comprises instructions that cause the machine to:

modify the particle attribute an amount that varies based on the distance.

30. The apparatus of claim 26, wherein the particle system is a three-dimensional particle system and the particles are defined by three-dimensional coordinates.